

WHAT IS CLAIMED:

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1. A method for corrective surgery in a human subject of a defect being amenable to rectification by the augmentation of tissue subjacent to the defect comprising the steps of:

- a) retrieving a plurality of viable cells from the subject;
- b) culturing the viable cells *in vitro*; and
- c) placing an effective volume of the *in vitro* cultured cells into a tissue of the subject the tissue being located in a position subjacent to the defect to be rectified.

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2. The method of claim 1 wherein the *in vitro* cultured cells are placed in the tissue of the subject by a method selected from injection, engraftment, engraftment by threading and direct placement.

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3. The method of claim 1 wherein the *in vitro* cultured cells are fibroblasts.

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4. The method of claim 3 wherein said fibroblasts are derived from a tissue selected from the group consisting of dermis, fascia, connective tissue and lamina propria.

5. The method of claim 1 wherein the *in vitro* cultured cells are adipocytes.

6. The method of claim 1 wherein the cultured cells are .

5 suspended in a collagen or modified collagen solution prior to
injection.

7. The method of claim 1 wherein the cells are cultured in a collagen or modified collagen matrix.

8. The method of claim 7 wherein the cells and the matrix are placed in the tissue by injection.

9. The method of claim 7 wherein the cells and the matrix matrix are placed in the tissue by engraftment.

10. The method of claim 1 wherein serum from the subject is used for *in vitro* culture of the cells.

11. The method of claim 1 wherein the *in vitro* cultured cells are washed in phosphate buffered saline before being placed into the tissue of the subject.

12. The method of claim 1 wherein the defect is a rhytid, stretch mark, depressed scar, cutaneous depression, hypoplasia of the lip, or scarring from acne vulgaris.

13. The method of claim 12 wherein the defect is a rhytid, stretch mark, wrinkle, depressed scar, cutaneous depression, hypoplasia of the lip, prominent nasolabial fold, prominent melolabial fold, scarring from acne vulgaris, or post-rhinoplasty irregularity.

14. The method of claim 1 wherein the *in vitro* cultured cells are placed by injection into:

- a) the lower dermis;
- b) the middle dermis;
- c) the upper dermis; and
- d) the subcutaneous region of the skin.

15. A substantially pure *in vitro* produced extracellular matrix composition obtained from the process comprising the steps of:

- a) culturing cells *in vitro* in a culture vessel for a time sufficient for the cells to produce extracellular matrix;

- b) separating the extracellular matrix produced by the cultured cells from the culture vessel;
- c) collecting the extracellular matrix.

5 16. A method for corrective surgery in a human subject of a defect being amenable to rectification by the augmentation of tissue subjacent to the defect comprising the steps of:

- a) retrieving a plurality of viable cells from the subject;
- b) culturing the cells *in vitro* in a culture vessel for a time sufficient for the cells to produce extracellular matrix;
- c) separating the extracellular matrix produced by the cells from the culture vessel;
- d) collecting the extracellular matrix; and
- 15 e) placing the collected extracellular matrix into a tissue subjacent to the defect.

17. The method of claim 16 wherein the extracellular matrix is exposed to a hypotonic solution prior to being placed into the tissue subjacent to the defect.

18. The method of claim 1 wherein the defect is present in the vocal cord of the subject.

19. The method of claim 18 wherein the autologous in vitro cultured cells are placed in a site of the vocal cord selected from the group comprising a scar, Reinke's space, a muscle of the vocal cord, and the lamina propria.

20. The method of claim 16 wherein the defect is present in the vocal cord of the subject.